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Evaluation of an Intervention Program for the Reduction of Bullying and Victimization in Schools

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The present study evaluates the effect of an intervention program on the reduction of bullying and victimization in schools with a sample of 239 students aged 10–16 years old in Rome, Italy. The program deals with bullying and violence. It consists of three videos and a booklet that help students to develop the social cognitive competence skills to understand the negative consequences of aggressive behavior. The intervention was evaluated using an experimental design with pre-test and post-test analyses. Students were randomly allocated to experimental or control classes. Students completed a self-report questionnaire in which they were asked to indicate on a 5-point scale how often they were victimized or bullied others. Victimization and bullying were assessed by using questions about specific types of actions, a composite measure of victimization and bullying, and a single question about victimization and bullying in general. Results showed that the program worked best for older students, but not for younger ones who in some cases reported an increased level of victimization after the intervention. For older students there was a decrease in victimization according to the sum of types of behavior for the experimental group, but an increase for the control group. The same result was found for direct victimization, having belongings stolen, and being called nasty names. Therefore, the program seemed to be beneficial for older students but possibly damaging for younger students. It is suggested that the program could have worked better with older students because of the cognitive skills it required. Younger students could have reported higher levels of bullying after the intervention because they became more sensitized to the topic of bullying. *Aggr. Behav.* 30:1–15, 2004.

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Key words: bullying; victimization; intervention program; cognitive abilities; evaluation

Introduction

Bullying in schools is a serious problem affecting children in many countries [Rigby, 1996; Roland and Munthe, 1989; Smith et al., 1999] from childhood until adolescence. Bullying can be verbal, physical, or psychological in nature. It occurs over a prolonged period of time, rather than

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being a single aggressive act, and it involves an imbalance of power. The more powerful person or persons pick on the more powerless [Boulton and Underwood, 1992; Farrington, 1993].

In the last decades several programs have been developed and used to prevent and reduce bullying and violence in schools. In some countries, programs have been adopted widely (e.g. Norway, Great Britain, Australia). In some others (e.g., Italy, Spain, and Sweden), there are not yet extended programs promoted and supported by the government, but there are locally based programs that have shown promise [Smith et al., 1999].

The first extensive nationwide campaign against bullying was conducted in Bergen, Norway, in 1983, launched by the Ministry for Education, after public concern following the suicide of two children due to the continuous bullying they were subjected to at school. The campaign was mounted in all 3,500 Norwegian schools coordinated by Olweus [1993], and it included an extensive survey of bullying accompanied by a package of materials for teachers to use in classrooms. Materials included a video for classroom discussion and a folder to provide advice for parents. Evaluation data were collected using a self-report questionnaire developed by Olweus [1993] that was administered at three different times: prior to the intervention, one year after the intervention, and two years afterwards.

The evaluation of the effects of the intervention was carried out with four different grade/age cohorts (modal ages at time 1 were 11, 12, 13, and 14 years respectively) with an equal distribution of boys and girls [Olweus, 1994]. Up to 50% of students who reported being bullied or bullying others ("now and then" or more frequently prior to the intervention) significantly reduced their level of involvement in such behaviors after the intervention. According to Olweus [1999] a program is more likely to be effective if it is supervised in all its phases by those implementing the program. Teachers and principals should not be left alone in delivering the program; constant supervision and technical assistance are needed.

Subsequent studies assessing the effects of intervention programs, as in the case of Norway, did not always report such significant effects [Roland, 2000]. However, these programs proved to be effective in reducing bullying in some respects [see also Sharp and Smith, 1994; Smith and Shu, 2000].

Another extensive program was developed in the UK at the end of the 1980s, sponsored by the Department for Education (DFE) for three years. The Anti-Bullying Project was launched at Sheffield University, co-ordinated by Peter Smith. The program is mainly based on cognitive abilities and is most suitable for older children who have better developed cognitive and social skills. It included a survey of nearly 7,000 students from 24 different schools [Smith and Sharp, 1994]. All schools that took part in the survey (except one) continued the project and carried out the intervention. Eslea and Smith [1998] followed up four of the original schools and found that the program had been effective in reducing bullying among boys but not among girls, who in some schools reported even higher levels of involvement in bullying. According to the authors, this result could be due to an increased awareness of bullying after the intervention and therefore a higher probability of admitting bullying and victimization.

When developing an intervention program it is essential to test its efficacy by comparing pre- and post-data of students who received the intervention (experimentals) with those who did not (controls) [Eslea and Smith, 1998; Smith and Sharp, 1994; Smith and Shu, 2000]. Stevens et al. [2000] are among the few to have used this kind of experimental design to assess the effects of a bullying intervention program. They found significant (desirable) changes after the intervention in the experimental group, but not in the control group.

Studies focusing more on an individualistic approach for the reduction of violence (and aggression in children) have been conducted in North America [Pepler and Rubin, 1991] and

are now largely adopted throughout the United States and the Netherlands [Dodge, 2001; Winkel and Baldry, 1997]. These studies are based on a cognitive-behavioral approach: aggressive children are told about the negative consequences of their actions and are trained to control and reduce their violent behavior.

Chandler [1973] found that it is possible to teach and learn perspective-taking skills; similar results were obtained by Kendall et al. [1991]. Winkel and Baldry [1998] and Baldry and Winkel [2001] developed a program for 11–14 years old children to teach them perspective taking skills and to become more empathic. The program had positive effects, meaning that children who benefited from the intervention became more aware of the (negative) consequences of their behavior. Older children were more able to benefit from the program because it required the development of social and cognitive skills.

O'Moore and Kirkham [2001] showed that children at higher risk of being bullied are those who had poorer assertive skills and lower self-esteem. Interventions addressing individual characteristics are useful for helping victims acquire social and relational skills as well as reducing children's overall involvement in bullying. These methods, targeted on the individual, can be adopted as a part of a broader approach that intervenes also with the school climate, teachers, and parents [Smith and Sharp, 1994].

Baldry [2001] developed a program called '*Bulli & Pupe*' (Bullies and Dolls) that was used in the present study. The program is directed towards the individual and the peer group, and it aims to enhance awareness about violence and its negative effects. This is achieved by teaching participants about negative effects of bullying, helping them to develop alternatives to aggression by enhancing empathy, and perspective taking skills. The program aims to increase students' awareness that violence and aggression can be reduced and prevented if peers act supportively rather than with nonchalance towards victims [Salmivalli et al., 1996]. Approving bullying and aggressive behavior, or even not doing anything to stop it, can lead to further escalation of violence affecting social relations, school climate, and peer relations.

This program consists of a kit of three videos and a booklet divided into three parts. Each video corresponds to one part of the booklet and takes the form of an interactive lesson where professionals, experienced in school and juvenile processes, discuss different issues: 1) *Bullying among peers*. The focus here is to talk about teen violence among peers by showing that forms of bullying may lead to further aggressive and violent behavior. The video shows children and adolescents speaking out on what they think about bullies and victims, providing their own accounts and judgments. In the booklet there are vignettes and graphics reporting findings from research and explaining bullying and its consequences. 2) *Children witnessing domestic violence*. The second part of the program analyses the effects of domestic violence on children, on both their physical and psychological well-being, and the repercussions for school achievement and peer relations. The video shows children in a shelter for battered women describing their emotions and experiences. The booklet, in particular, describes how bullying and aggressive behavior can be learned at home; children exposed to domestic violence might react either passively, therefore being more at risk of victimization at school, or by being aggressive themselves towards peers perceived as weaker. 3) *The 'cycle of violence'*. The last part of the program deals with the long term effects of violence on adults who were victims of violence in their childhood: women who might persist in abusive relationships, and men who might become violent with their partners and children. The video consists of an interview conducted with a 19-year-old boy who had a violent father. He explains the negative impact that this had on his social and relational well-being.

The video and the booklet are used with active methods such as role-playing, group discussions, and focus groups. These methods aim to teach empathy and 'perspective taking' skills. Participants actively involved in the program must have good cognitive abilities.

According to Eslea and Smith [1998], most programs for the reduction of bullying seem to work only in the short term because they often take place during a limited period of time and are not followed up; it is plausible that they are effective mainly in increasing awareness and changing attitudes towards bullying. Changing behavior is a more difficult task and requires more extensive work. Intervention has to run for at least one year, and has to become part of a whole-school policy.

The present study makes use of an experimental design and evaluates the impact of an intervention program to reduce bullying and victimization on a sample of middle and high school students in Rome. Because the program requires its participants to have good interpersonal and cognitive skills to be successfully implemented, it was hypothesized that it would work better for older students than for younger ones.

METHOD

Participants

The sample taking part in the study consisted of 239 students. Two were removed from the analysis because they were much older than others. The final sample consisted of 131 students in the experimental group (55.3%), and 106 students in the control group (44.7%). Both experimental and control students came from the same schools, but from ten different classes that were randomly allocated to one of the two conditions in order to have comparable samples.

Schools were chosen according to accessibility for the authors. The first author contacted five schools and explained the aim of the research intervention. Three schools agreed to take part in the study. Once schools provided their consent, parents' informed consent was also obtained. Parents had to sign a 'non-consent' form if they did not want their child to take part in the study. After further clarification about the aims of the study, no parent signed this form.

Students were recruited from two middle schools and from the first year of one high school in Rome. Middle schools in Italy consist of three years: in the first, students are aged 11–12 years, in the second 12–13 years and in the third 13–14 years. The first year of high schools in Italy consists of students aged 14–15 years. Comparisons between the control and the experimental groups prior to the intervention are summarized in Table I. The groups were not significantly different on any variable.

The father's and mother's occupations, the number of family members, and the area of residence were used to classify participants in one of the three levels of social status of the family. These indicators allowed us to estimate the level of socio-economic status. Socio-economic comparisons between the two groups did not indicate any statistically significant differences.

The Experimental Group

Students were contacted in their own classes by the first author with the help of an assistant. The intervention lasted three days (a three-hour session once a week for three weeks), according to the schedule of the intervention program (*'Bulli & Pupe'*), plus a fourth day, four months after the intervention, to fill in the post-test follow-up questionnaires.

Table I. Comparisons of Experimental and Control Groups Before the Intervention

		Experimental	Control
<i>Number of students</i>		131	106
<i>Gender</i>	Male	52.4%	46.2%
	Female	47.6%	53.8%
<i>Mean Age</i>		13.2 (sd = 1.1)	13.5 (sd = 1.4)
<i>School year</i>	First middle school	17.8%	30.1%
	Second middle school	31.0%	25.5%
	Third middle school	31.2%	30.2%
	First High school	20.0%	14.2%
<i>Place of birth</i>	Province of Rome, Central Italy	61.1%	59.6%
	Rome	32.1%	33.0%
	North	1.2%	0.9%
	South	2.0%	2.3%
	Abroad	3.6%	4.2%
<i>Mother's occupation</i>	Housekeeper	35.0%	35.2%
	State employee	22.7%	23.5%
	Skilled, semi-skilled worker	15.5%	14.3%
	Domestic working activity	9.7%	10.6%
	Shop dealer, craftswoman	8.8%	8.2%
	Professional, manager	6.8%	6.5%
	Unemployed	1.5%	1.7%
<i>Father's occupation</i>	Skilled, semi-skilled worker	51.3%	53.5%
	State employee	19.1%	18.7%
	Professional, manager	18.4%	18.0%
	Merchant, craftsman	6.0%	5.6%
	Unemployed, pensioner, dead	5.2%	4.2%
<i>Social class</i>	Low	53.9%	55.2%
	Middle	37.4%	28.1%
	High	8.7%	16.7%
<i>Parents living together</i>	Yes	90.5%	89.7%
	No	9.5%	10.3%

Note. Control and experimental groups were not significantly different on any variable.

Schedule of the Experiment. On the first day of the intervention, students were approached in their own classes. They were told that the program consisted of three days in which several issues regarding school and family life were to be discussed. Students were asked on the first day, before the intervention started, to fill in a self-report questionnaire regarding bullying and victimization experiences in the previous three months (from the beginning of the school year). They were assured about the confidentiality of the study and the anonymity of their answers. They were also told that no one but the researchers would read their answers. Students were given the opportunity to raise questions.

Students were told that the study was about bullying in schools and were provided with a definition of bullying. They also had the opportunity to provide their own explanation of bullying. Students were given the following definition of what constitutes bullying:

“Students bully weaker peers at school by deliberately and repeatedly hurting and upsetting them in several ways; by calling them names, hitting or threatening them, and playing nasty games. It is not bullying when two students of about the same strength quarrel or have a fight.”

The intervention started after completion of the questionnaire. Four months following the intervention, students were given the same questionnaire measuring bullying and victimization in schools and were asked to fill it in according to their experiences in the previous three months (from the Christmas holidays onwards) in order to have comparable pre- and post-measurements of bullying. The sample of the post-test experimental group also consisted of 131 students. There were no dropouts.

The Control Group

During the first day of the study when students from the experimental group started the intervention, the control group completed the same self-report questionnaire measuring bullying in the previous three months using the same procedure. Students were told that we were conducting research on life in schools; nothing was said to them about the intervention taking place in other classes. Four months after the program, the control group completed the same self-report questionnaire measuring their involvement in bullying in the previous three months. The sample of the post-test control group consisted of 106 students; again no student dropped out.

The Questionnaire

To test whether the intervention program had any effect in reducing bullying and victimization in the experimental group, we made use of the Italian version [Baldry and Farrington, 1998; Genta et al., 1996] of the original questionnaire developed by Olweus in 1991, in its last version revised by Smith and Shu [2000]. The questionnaire measures the nature and prevalence of bullying and victimization in schools.

The questionnaire includes detailed questions about the experience of bullying others (frequency of bullying, types of bullying, place of occurrence, reaction to bullying, beliefs about one's own bullying behavior), in addition to questions about being bullied [Smith and Shu, 2000]. For the purpose of the present study only questions about:

- Prevalence and frequency of bullying and victimization
- Types of bullying and victimization (direct bullying, physical – kicked, punched – and verbal – called names, and indirect bullying – rejected and left alone); were taken into consideration.

To measure bullying and victimization, two different questions were asked: 'Have you been bullied at school in the previous three months?' and 'Have you bullied others in the previous three months?' For these questions as well as for measures of types of bullying and victimization, students could choose one of the following options:

- A) It never happened in this period
- B) It has only happened once or twice
- C) It has happened sometimes
- D) It has happened about once a week
- E) It has happened several times a week

Because bullying and victimization are defined as repeated actions [Olweus, 1993; Rigby, 1996], when students answered A) or B) they were considered to be not involved in bullying or victimization; if they answered C), D), or E) then they were classified as bullies (or victims) at least sometimes in the previous three months. The same procedure was used to measure different types of bullying and victimization. Hence, these variables were in some cases dichotomized. In addition to this measurement, two other variables were created,

one measuring bullying and the other victimization, by adding together all different items measuring different types of bullying (6 items) and victimization (7 items), presented in Table II. These two variables were measured on a continuous scale.

Results

The first step in the analysis was to compare the experimental and the control group before the intervention to check whether the two samples were comparable in terms of their level of reported bullying and victimization.

Subsequently, we analyzed the effects of the intervention program on the prevalence of bullying and victimization by comparing pre- and post-test results in the experimental and control groups, overall and separately for younger *versus* older students (first/second school year students versus third year middle school students and first high school ones) to test the hypothesis that this program, which contains components that require good cognitive abilities, might work better for older students.

Comparability of Experimental and Control Groups

There were no significant differences between the two groups in both victimization and bullying. Results indicated that 34.4% of students in the experimental group had been victimized sometimes or more often in the previous three months (see Table II), compared to 43.4% of all participants in the control group. With regard to bullying others it emerged that for the experimental group 26.4% of all students bullied others *sometimes or more often* in the previous three months. For the control group 36.2% admitted bullying others sometimes or more often.

Students were also asked about specific types of bullying and victimization and prevalence rates were compared between experimentals and controls. Comparisons are presented in Table II. There were few significant differences between the experimental and control groups: students from the experimental group were called nasty names, left alone at recess time, and had their belongings taken away more often than students from the control group prior to the intervention. The difference in direct victimization was almost significant ($p = .08$). When comparing the measurement of total victimization and bullying obtained by summing all these types of bullying and victimization, no significant differences between the control and experimental groups were found.

Evaluation of the Intervention Program

In order to test whether the intervention had any significant effect on students who received it, in terms of reducing bullying or victimization, several analyses were conducted. The effects of the program on bullying and victimization in general were investigated, as well as the effects on specific types of bullying and victimization, to check whether the intervention worked better for certain types of bullying but not for others. Data were also analyzed by looking at any differences between younger students (first and second year of middle schools) versus older ones (third year of middle school and first year of high school).

To test whether the intervention was effective two procedures were used. 1) If the main effects indicate that post-test measures significantly differ from pre-test ones (lower levels of bullying and/or victimization) for the experimental group but not for the control one, then the intervention has been effective. 2) An intervention is effective if the two-way interaction

Table II. Types of Victimization and Bullying for Experimental and Control Groups Before the Intervention

Types of victimization	Experimental% (N = 128)	Control% (N = 105)
'I was called nasty names'	33.6	21.2 ^a
'I had rumors spread about me'	22.0	26.2
'No one would stay with me at recess time'	18.3	8.7 ^b
'I had my belongings taken away from me'	12.7	2.9 ^c
'No one would talk to me'	11.7	15.9
'I was threatened'	10.3	14.3
'I was physically hurt, e.g. hit and kicked'	8.7	5.8
Total victimization	51.2	45.7
Direct victimization	42.2	31.1
Indirect victimization	34.4	38.1
Types of bullying		
'I called someone nasty names'	23.4	20.0
'I did not talk to someone on purpose'	16.4	22.1
'I physically hurt, e.g. hit and kicked'	9.5	6.8
'I threatened'	5.5	7.6
'I spread rumors about someone'	5.5	2.9
'I stole or ruined belongings'	2.4	0.0
Total bullying	35.2	41.3
Direct bullying	29.8	26.9
Indirect bullying	21.1	24.0

^a $\chi^2 = 4.41$, $df = 1$, $p < .05$; ^b $\chi^2 = 4.72$, $df = 1$, $p < .05$; ^c $\chi^2 = 7.13$, $df = 1$, $p < .01$.

Notes. Percentages refer to all students in the pre-test sample. Some data were missing.

'Direct victimization' and 'direct bullying' include calling nasty names, physically hurting, taking away belongings, threatening. 'Indirect victimization' and 'indirect bullying' include rejection, rumors spreading, no one talking. 'Total' bullying and victimization are based on composite measure. Percentages exceed 100 because students could check more than one type of victimization or bullying.

effect between pre-/post-test and control/experimental group is statistically significant. This essentially tests whether the intervention had an effect after controlling for pre-test differences.

In order to verify if the program had any effect on bullying and victimization according to the different age groups, we used 2 (control vs. experimental) \times 2 (pre vs. post test) \times 2 (first and second middle school year vs. third year of middle school and first year of high school) ANOVAs separately for bullying and victimization (see Tables III and IV). Analyses were first conducted by using the single item assessing bullying and victimization (i.e., "Have you been victimized at school in the last three months?", and "Have you bullied other peers in the last three months?").

Subsequently, we used the same 2 \times 2 \times 2 design to compare groups on each type of bullying and victimization and on the total measurement obtained from the sum of all types of bullying and victimization.

With regard to the single question about victimization, results indicate that the program had a desirable effect in reducing the level of reported victimization for the experimental group relative to the control group for older students. For younger students, results are in the opposite direction and they show an undesirable increase in the level of victimization for the experimental group relative to the control group. Hence, there is a significant 3-way

TABLE III. Means and F values for Interactions and t-Values for Victimization in General and Different Types of Victimization According to the Conditions and School Years

Types of victimization	Younger students						Older students							
	Pre		Post		2-way interaction	F	Pre		Post		2-way interaction	F	3-way interaction	
	test	t- value	test	t- value			test	t- value	test	t- value			all sample F	df
'I was victimized'	Control	1.59	.71	4.32**			1.08	1.52	-1.62					
	Exper	.98	1.16	-.63	10.37**	1, 223	1.18	.86	1.64	7.92**	1, 248	16.03***	1, 472	
Sum of different types of victimization	Control	3.25	1.85	2.50*			1.84	2.78	-1.77					
	Exper	3.66	2.24	1.64	.00	1, 214	3.64	2.31	1.92*	4.83*	1, 244	2.41	1, 459	
'I was called nasty names'	Control	.78	.49	1.74			.50	.92	-1.94*					
	Exper	.89	1.00	-.45	1.92	1, 220	1.03	.81	1.13	4.49*	1, 251	6.12**	1, 472	
'I was physically hurt, (hit and kicked)'	Control	.26	.11	1.50			.06	.23	-1.45					
	Exper	.39	.10	2.12*	.25	1, 219	.23	.21	.22	1.29	1, 248	.04	1, 468	
'No one would stay with me at recess time'	Control	.37	.51	-.79			.34	.53	-.98					
	Exper	.67	.25	2.08*	3.75*	1, 225	.67	.38	1.66	3.01	1, 252	.04	1, 472	
'I was threatened'	Control	.45	.10	2.69**			.11	.05	.78					
	Exper	.36	.10	2.23*	.23	1, 218	.29	.16	1.05	.19	1, 246	.41	1, 465	
'Others did not talk to me on purpose'	Control	.59	.20	2.40*			.23	.10	1.11					
	Exper	.43	.33	.58	1.53	1, 218	.32	.22	.81	.01	1, 248	.47	1, 467	
'Others spread rumors about me'	Control	.84	.40	2.50*			.78	.87	-.33					
	Exper	.74	.35	1.68	.38	1, 220	.48	.35	.91	.66	1, 247	.47	1, 468	
'I had my belongings stolen or ruined'	Control	.12	.07	.83			.17	.29	-.84					
	Exper	.25	.21	.33	.01	1, 217	.64	.22	3.11**	6.42**	1, 247	4.57*	1, 465	
Direct victimization	Control	1.52	.76	2.73**			.64	1.39	-2.19*					
	Exper	1.88	1.41	.99	.27	1, 216	2.20	1.40	1.83	5.59*	1, 245	4.53**	1, 462	
Indirect victimization	Control	1.75	1.07	1.96*			1.30	1.39	-.24					
	Exper	1.82	.90	1.94*	.16	1, 217	1.44	.96	1.46	1.17	1, 246	.18	1, 464	

Note. Answers were given on a 5 point scale ranging from 0 to 4. Where '0' means 'never happened' and 4 'it happened several times'. Low values indicate low levels of that victimization. For the sum of different types of victimization only, values could range between 0 and 28. 'Direct victimization' includes called nasty names, physically hurt, belongings taken away, threatened. 'Indirect victimization' includes being rejected, rumors spread, no one would talk. Differences in numbers are due to missing values. *p< .05; ** p< .01, *** p< .001.

TABLE IV. Means and F values for Bullying in General and Different Types of Bullying According to the Conditions and School Years

Types of bullying	Younger students					Older students					3-way interaction all sample F			
	Pre test	Post test	t-value	2-way interaction	F	df	Pre test	Post test	t-values	2-way interaction		F	df	
'I bullied others'	Control	.91	.85	.39			1.19	1.41	-.85					
	Exper	.87	1.66	-2.67*		1, 223	.89	.98	-.54		.21	1, 252	5.62**	1, 476
Sum of different types of bullying	Control	1.54	1.57	-.07			2.11	3.39	-1.69					
	Exper	1.69	2.69	-1.42		1, 212	2.54	2.31	.41		2.83	1, 243	4.60*	1, 456
'I called someone nasty names'	Control	.48	.47	.08			.72	.97	-1.14					
	Exper	.57	1.35	-2.67*		1, 221	.97	.94	.16		1.14	1, 248	7.44**	1, 470
'I physically hurt, e.g. hit and kicked'	Control	.14	.10	.59			.30	.95	-2.67**					
	Exper	.15	.63	-2.00		1, 219	.48	.31	1.06		9.89**	1, 248	17.35***	1, 468
'I threatened'	Control	.12	.06	.94			.34	.62	-1.24					
	Exper	.07	.21	-.95		1, 219	.36	.25	.79		2.56	1, 249	4.39*	1, 469
'I did not talk to someone on purpose'	Control	.66	.69	-.22			.63	.79	-.81					
	Exper	.66	.72	-.33		1, 220	.47	.54	-.49		.12	1, 247	.09	1, 468
'I spread rumors about someone'	Control	.12	.21	-.85			.13	.41	-1.94					
	Exper	.23	.14	.75		1, 219	.19	.16	.25		2.96	1, 245	.29	1, 465
'I stole or ruined belongings'	Control	.02	.04	-.69			.00	.28	-2.53**					
	Exper	.03	.28	-1.52		1, 218	.08	.14	-.88		2.74	1, 244	6.49**	1, 463
Direct bullying	Control	.84	.85	-.03			1.52	2.44	-1.47					
	Exper	.89	2.78	-2.31*		1, 209	2.10	1.81	.59		2.27	1, 239	9.12**	1, 449
Indirect bullying	Control	.78	.90	-.54			.76	1.11	-1.38					
	Exper	.89	.77	-.51		1, 217	.66	.67	-.05		1.04	1, 244	.04	1, 462

Note. Answers are on a 5 point scale ranging from 0 till 4. Where 0 means 'never happened' and 4 'it happened several times.' For the sum of different types of bullying only, values could range between 0 and 24. Low values indicate low levels of that type of bullying. Direct bullying includes calling nasty names, physically hurting, taking belongings away, threatening. 'Indirect bullying' includes rejecting, rumors spreading, not talk to someone on purpose. Differences in numbers are due to missing values. * p < .05; ** p < .01; *** p < .001.

interaction effect. With regard to the composite measure of total victimization, we found a significant interaction effect (presented in Fig. 1) due to the decrease in the level of victimization in the experimental group for older students relative to an increase for the control group. The control group and the experimental group both decreased for younger students.

Looking at individual types of victimization, a significant 3-way interaction effect was found for verbal victimization (i.e. called nasty names) and 'having belongings stolen.' In both cases, for older students, there was a decrease in the experimental group and an increase in the control group. While being 'called nasty names' and 'having belongings stolen' were the only significant 2-way interaction effects of the experimental group relative to the control one in older students. Similar effects (a decrease in the experimental group and an increase in the control group) were found in younger students for 'not staying with me at recess time.' Two-way interaction effects show that the program was most successful in reducing direct victimization for older students.

Results for bullying show a significant 3-way interaction effect for the single bullying item for older students relative to younger ones. For younger students, there was a significant increase in the reported level of bullying in the experimental group but no change in the control group. For total bullying (see Fig. 2), this increased more in the experimental group for younger students and more in the control group for older students.

Results for types of bullying ('calling someone nasty names,' 'physically hurting' 'threatening' and 'stealing or ruining belongings') in younger students indicate significant 2-way interaction effects due to an increase in the experimental group relative to no change in the control group. For older students, there was a significant 2-way interaction effect for physically hurting someone. As in the case of victimization, the experimental group decreased and the control group increased.

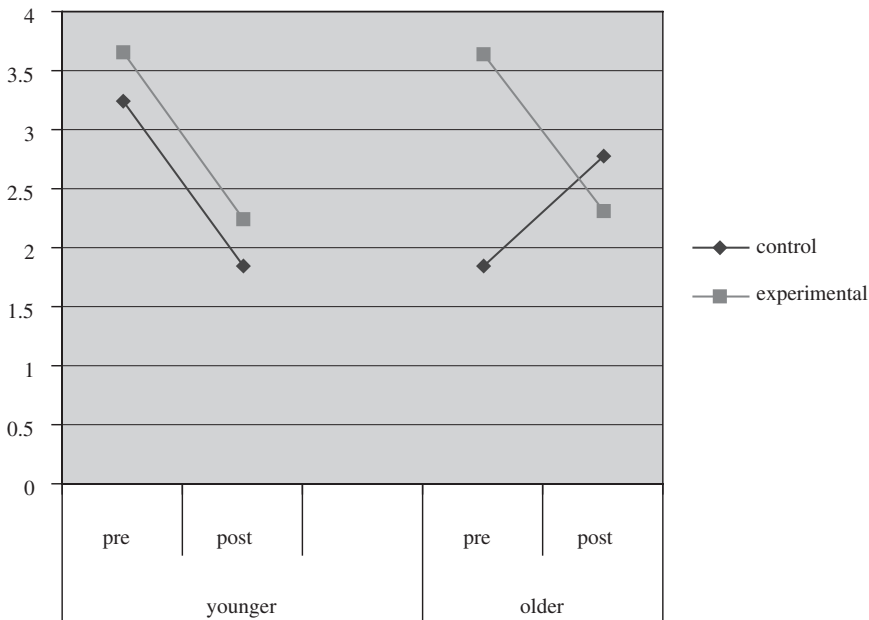


Fig. 1. Sum of different types of victimization in experimental and control groups.

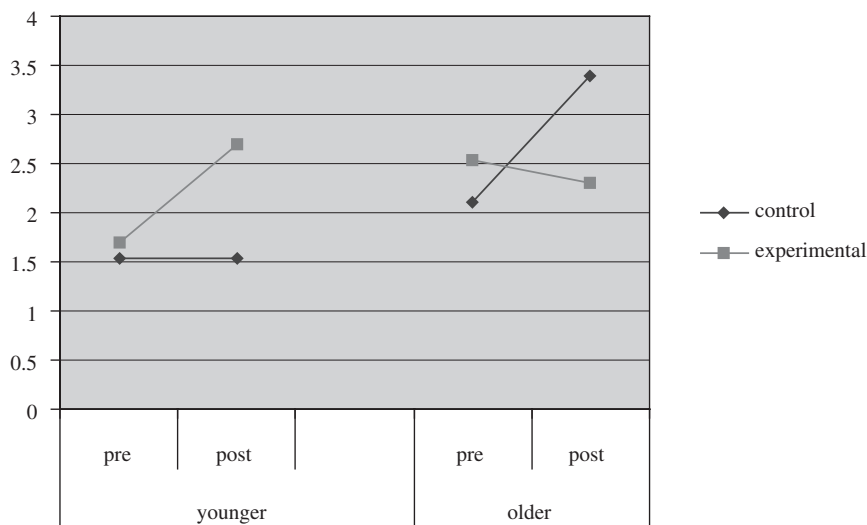


Fig. 2. Sum of different types of bullying in experimental and control groups.

Tables III and IV present a substantial number of tests. However, the number of significant tests at $p = .05$ were far in excess of what we would expect by chance, both in cases of victimization and bullying. For example, 13 out of 42 two-way interaction tests were significant (31% compared with chance expectation of 5%).

DISCUSSION

The present study evaluated the effect of an intervention program intended to reduce bullying in middle and high schools in Rome. The program was based on a three-day intervention and addressed bullying at school and, more widely, domestic violence. The program therefore was not designed only to tackle bullying but more widely violence in the school and in the family environment. The implementation of the program made use of active and interactive methods such as role-playing, discussion groups, and a perspective-taking skills exercise. These methods were used to tackle certain behaviors and help participants to understand and face the negative consequences of their actions. Programs like this one using cognitive components can work best with older students. They have better cognitive skills and are better able to understand and learn about what is told to them and then put it into practice. In this regard, our study confirmed that only older students from the last year of middle school and the first year of high school (aged 14–16 years old) reported significant reductions in bullying and victimization after the intervention program. For younger students the trends were often in the opposite direction; the control group did better.

The improvement in the control group of younger students could be partly due to a contamination effect resulting from the allocation to control or experimental groups at a class level, not at a school level. Randomly allocating classes instead of schools implies that in the same school only some classes, students, and teachers take part in the study, while others do not. Participants in the experimental group might have discussed the program with other peers from the control group. In the present study any contaminating effect due to teachers

or students talking about the program with students from the control group could not be limited for ethical and practical reasons.

The contamination hypothesis might explain only why the control group did as well as the experimental group but it does not say anything about the control group doing better than the experimental group. It is not possible to determine the extent to which any contamination might have taken place, or whether in fact the program had a negative effect on those participating. To do this, future studies could use separate schools for the experimental and the control groups. It would also be possible to check for any contaminating effect by asking participants from the control group in the post-test measurement whether they heard about the program, to what extent, and what they thought about it.

The study showed that for individual types of victimization, significant differences occurred in the expected direction for older students. In the self-report questionnaire, there were two different sets of questions measuring victimization. Victimization (and bullying) was measured both with a single general question asking students to indicate how often they had been victimized in the previous three months, and also by questions about specific types of victimization. The proportion of students checking items measuring types of victimization was higher than the proportion of those who only checked the single general item. This result could indicate that when students are directly asked the question 'have you been victimized in the last three months?' they are less likely to identify themselves as 'victims of bullying' than if they are asked separately about individual types of actions that have happened to them at school that constitute bullying (threatened, called names, isolated, physically attacked, etc.). Hence, it may be desirable in future research to use as a measure for victimization (and bullying) a dimension derived from the sum of individual types of victimization rather than only the general measure. With the composite measure we found some significant effects of the intervention indicating that the experimental group of older students reported lower levels of victimization after the intervention. In particular, the program had a desirable effect in reducing direct victimization, calling nasty names, and having belongings stolen. Most changes in types of reported victimization were in the predicted direction, though not all were statistically significant.

Results on bullying were generally similar. On the single item, younger students reported higher levels of bullying after the intervention. The greater reporting of bullying by younger students could have occurred because the program made them more aware of bullying.

Smorti and Ciucci [2000] indicate that using self-report questionnaires might increase awareness of bullying by students; when asked to report about their experience in bullying after several months, they may be more willing to recognize and recall certain behaviors as 'bullying' whereas before they identified them simply as teasing. This, however, should have affected both experimental and control groups. In the present study the increase in the reported bullying of younger students might reflect increased sensitization to bullying because of the intervention. During the intervention students were told about what constitutes bullying by providing them with explanations of why certain actions that might be considered as teasing could have a negative impact on the victim and should therefore be identified as bullying. This 'boomerang' effect does not necessarily imply that there was an increase in bullying as such, but rather that students were more willing to acknowledge their own behavior as bullying. Older students might not have been sensitized as much because they might have been more aware of what constitutes bullying in the first place; overall they reported higher levels of bullying compared to the younger students prior to the intervention.

This could be an indication that older students identified their actions as bullying more frequently than younger peers regardless of the intervention.

A possible way to test this sensitization hypothesis and to obtain more objective and reliable data would be to obtain measurements from other sources, such as peers or teachers.

Three days of intervention may be a too limited period to change any behavior; this short term intervention can help increase awareness but "more efforts are needed to produce more effects" [Smith, 2001]. Nevertheless, this evaluation suggests that the program seems promising at least in reducing victimization of older students.

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